

**EPA Superfund
Record of Decision:**

**NAVAL WEAPONS STATION - YORKTOWN
EPA ID: VA8170024170
OU 05
YORKTOWN, VA
09/29/1995**

Text:

DECLARATION FOR THE RECORD OF
DECISION REMEDIAL ALTERNATIVE SELECTION

Site Name and Location

Operable Unit No. II
Site 16 (West Road Landfill) and Site Screening Area 16 (Building 402 M
Naval Weapons Station Yorktown
Yorktown, Virginia

Statement of Basis and Purpose

This decision document presents a determination that the No Further Rem
Institutional Controls is sufficient to protect human health and the environment
16, the West Road Landfill;

and Site Screening Area (SSA) 16, the Building 402 Metal Disposal Area
(WPNSTA)

Yorktown (Site 16/SSA 16). This determination has been made in accorda
Environmental

Response, Compensation, and Liability Act of 1980 as amended (CERCLA) a
National

Contingency Plan (NCP). This decision has been based upon documents co
file for

Site 16/SSA 16.

The Department of the Navy (DoN) has obtained concurrence from the Comm
United States

Environmental Protection Agency (USEPA), Region III, on the selected No
with

Institutional Controls.

Description of the Selected Remedy

The selected remedy for Site 16/SSA 16 is the No Further Remedial Actio
Site 16/SSA 16 has been designated as OU II. The No Further Remedial A

OU II is
the final action for Site 16/SSA 16. A Removal Action conducted by DoN

included the
removal of identified surficial waste material was conducted in 1994.

potential
for human health risks and ecological effects associated with the sourc

The selected remedy involves no additional remedial actions to take pla
monitoring or

sampling. The remedy includes institutional controls, specifically lan
restrictions.

Although risk levels at Site 16/SSA 16 under the future child resident
risk range,

institutional controls have been included as a conservative measure. T
to restrict

future land development of Site 16/SSA 16 area for residential purposes implemented to disallow the placement of potable supply wells within the site area. T established and maintained through the WPNSTA Yorktown's Master Plan. The institutiona that future residential use of the area will be controlled by the DoN. The rationa the results of the Round One and Round Two Remedial Investigations (RIs) for Site 1 ecological risk assessments, and confirmation sample results from the 1994 Removal at Site 16/SSA 16.

Declaration Statement

No further remedial actions with the exception of institutional control protection of human health and the environment. Contaminant levels detected in th to present no significant threat to human health or the environment with respect t institutional controls included under the selected alternative will ensure the protec with respect to future potential exposure scenarios. A five year review under 42 U. OU II under the selected alternative since identified site contaminants of concern, health-based levels, have been determined to be within the concentration range of na concentrations of inorganics found at WPNSTA Yorktown.

Signature (Commanding Officer Naval Weapons Station)

Thomas C. Voltaggio, Director
Hazardous Waste Management Division
USEPA - Region III

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DECISION SUMMARY

1.0 Introduction

On October 15, 1992 WPNSTA Yorktown was placed on CERCLA's National Priority List. As a result, the DoN has been appointed the lead agency for CERCLA action at Yorktown. The USEPA, Region III and the Commonwealth of Virginia also have jurisdiction over WPNSTA Yorktown; however, their roles are as support agencies. The USEPA, the Commonwealth of Virginia, and the DoN have recently finalized a Federal Facility Agreement (FFA) for WPNSTA Yorktown. The primary purpose of the FFA is to ensure that impacts associated with past disposal activities at WPNSTA Yorktown are minimized and that appropriate CERCLA and Resource Conservation and Recovery Act action alternatives are developed to protect human health and the environment.

An RI was conducted for the area known as Site 16, the West Road Landfill Building 402 Metal Disposal Area and Environs (i.e., Site 16/SSA 16). The RI follows the RI, was not performed at Site 16/SSA 16, since no unacceptable impacts on the environment were present at the Site under the current and predicted conditions at WPNSTA Yorktown (i.e., industrial). A Proposed Remedial Action Plan (PRAP) for Site 16/SSA 16 to document the decision for a No Further Remedial Action was based on comments received from the USEPA Region III, institutional controls selected alternative for Site 16/SSA 16.

A CERCLA remedial action is often divided into Operable Units. As defined in 40 CFR 300.5, an "Operable Unit means a discrete action that comprises an increment of action comprehensively addressing site problems. This discrete portion of a remedial action migration or eliminates or mitigates a release, threat of release or potential for release of a site can be divided into a number of operable units, depending on the nature of the problems associated with the site. Operable units may address geographically specific site problems or initial phases of an action, or may consist of actions over time or any actions that are concurrent but located in different parts of the site.

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This Record of Decision (ROD) for Site 16/SSA 16 as OU II has been prepared to provide the rationale for the No Further Remedial Action Decision with Institutional Controls. This is a compilation of key information that may be found in greater detail in the RI, Investigation Report, and in other documents contained in the administrative file. It has been prepared to summarize the remedial alternative selection process. The ROD is designated as OU II. The No Further Remedial Action Decision with Institutional Controls is the final action for OU II. Other operable units for other WPNSTA Yorktown sites are the subject of separate investigations.

The selected remedy involves no additional remedial actions to take place other than term monitoring or sampling. Institutional controls (i.e., land-use restrictions) will be implemented. Monitoring is not required since there are no releases under current scenarios for the environmental media at Site 16/SSA 16. Site 16/SSA 16 under the future child resident scenario are within the institutional controls have been included as a conservative measure.

Land-use restrictions will be established to restrict future land development.

area for residential purposes. Aquifer-use restrictions will be implementation of potable supply wells within the site area. Although some groundwater exceeded Applicable or Relevant and Appropriate Requirement Maximum Contaminant Levels (MCLs), they did not exceed naturally-occurring concentrations of these constituents which also exceeded the MCL concentration.

The institutional controls will be utilized to insure that future residential use be controlled by the DoN. These institutional controls will be enforced by the Yorktown Master Plan. The Master Plan is used to direct and coordinate site activities and is updated periodically.

The rationale for selecting this remedy was based on the results of the RI for Site 16/SSA 16, baseline human health and ecological risk assessment sample results from the 1994 Removal Action. The rationale is presented in Section 8.0.

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2.0 Site Name, Location and Description

WPNSTA Yorktown

WPNSTA Yorktown is a 10,624 acre installation located on the Virginia peninsula between James City County, and the City of Newport News. Figure 2-1 displays the location of WPNSTA Yorktown. The facility is bounded on the northwest by the Naval Supply Center, the Virginia Emergency Fuel Farm, and the future community of Whittaker by the York River and the Colonial National Historic Parkway; on the south by Interstate 64; and on the southeast by Route 238 and the community of Littleton.

WPNSTA Yorktown, originally named the U.S. Mine Depot, was established during the laying of mines in the North Sea during World War I. The establishment was the culmination of a search process, begun in 1917 at the request of Congress for a site for weapons handling and storage. For 20 years after World War I, the facility reclaimed, stored, and issued mines, depth charges, and related materials. The facility was expanded to include three additional trinitrotoluene (TNT) torpedo overhaul facilities. A research and development laboratory for explosives was established in 1944. In 1947, a quality evaluation laboratory was established to monitor special tasks assigned to the facility, which included the design, development, and testing of depth charges and advanced underwater weapons. On August 7, 1959, the U.S. Navy redesignated the U.S. Naval Weapons Station. Today, the primary mission is to provide ordnance, technical support, and related services to sustain the U.S. Armed Forces.

Site 16/SSA 16

Figure 2-2 presents a site map for both Site 16 and SSA 16. As shown, SSA 16 overlies the northern portion of Site 16. Subsequently, RI activities were conducted at the same time; therefore, the entire area is referred to as Site 16/SSA 16.

Site 16 is an approximately 5-acre area located adjacent to West Road north of the main installation.

portion of the Site is adjacent to a set of railroad tracks and is prim

remaining portion of the site is currently wooded. The eastern, southe site dip into drainage pathways that run in a southerly direction. Eve pathways move west into Felgates Creek, which drains into the York Rive miles from the site.

SSA 16 is located between West Road and a set of railroad tracks, west encompasses the northern area of Site 16, which is primarily flat and c

With respect to land usage, no housing currently exists at Site 16/SSA used for waste container storage prior to the remodeling and conversion hazardous waste storage facility. The current WPNSTA Yorktown hazardou is located at Building 2035. Building 53 at the western portion of Sit Stations' wildlife and forestry management personnel. North of the Sit paddock.

With respect to geology and hydrogeology, the Site is underlain by unco grain sand, silts, clays, and marine shells. The Dogue, Pamunky, and t was observed north of Felgates Creek, throughout the majority of the st association are generally found to be deep, moderately to well drained, sandy, loams in the surface soils. The subsurface soils are either loa groundwater flow is towards the southwest in the direction of Felgates

3.0 Site History and Enforcement Activities

Site 16/SSA 16 - History

Site 16 was operated from the 1950's to the early 1960's as a dump site been disposed include: dry carbon-zinc (Leclanche) batteries, banding transmitting fluid, unknown types of chemicals, mine casings, construct drums (contents unknown). During a waste characterization investigatio Site 16 was identified as being surficial debris. Mine casings, batter construction debris were identified in several areas across the surface

Only one small area containing waste at depth was encountered at Site 1 pile of drums, this small waste area contained common refuse material i newspapers. The refuse material was encountered at a depth of 2 feet b extended to a depth of approximately 9 feet. Based on this waste chara was disposed by filling in the slope edge of the site and then covering

SSA 16 was used for scrap metal storage. Dumpsters containing scrap me the lower southwest side of the SSA. Empty drums and scrap metal had b ground surface near these dumpsters.

Previous Investigations

Previous investigations at Site 16/SSA 16 include an Initial Assessment and RI Interim Report, a Biological Sampling and Preliminary Risk Evalu a Habitat Evaluation, a Removal Action, and a Round Two RI. The result briefly discussed below.

Initial Assessment Study

An Initial Assessment Study was conducted at WPNSTA Yorktown in 1984. study was to identify and assess sites posing a potential threat to hum environment due to contamination from past operations. The study ident

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Yorktown, including Site 16, that were of sufficient threat to human he warrant further investigations.

Confirmation Study and RI Interim Report

In 1986 and 1988, two rounds of sampling were conducted for a Confirmat study was documented in two Confirmation Study reports and a third repo Report. The RI Interim Report recommended that further RI activities b

Biological Sampling and Preliminary Risk Evaluation

The Biological Sampling and Preliminary Risk Evaluation, which included biological tissue, surface water, and sediment from select waters withi conducted in 1992. The primary objective of the sampling program was t human health risk associated with consumption of fish and shellfish tak the Station.

Round One RI

The Round One RI for Site 16/SSA 16, conducted in 1992, included soil, and groundwater sampling at the locations identifies in Figure 3-1. Th discuss the results of the sampling effort.

Soil

Fourteen soil samples were collected from a depth interval of zero to t compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, p biphenyls (PCBs) and inorganic compounds were detected in the soil samp detected in the samples were toluene at 2J micrograms per kilogram (æg/ 16S05 and styrene at 5J æg/kg at sample location 16S06. SVOCs were det in concentrations ranging from 20 æg/kg to 700 æg/kg. Pesticides were in concentrations ranging from 0.40 æg/kg to 7.7 æg/kg. PCBs were dete concentrations ranging from 13J æg/kg to 880 æg/kg. Several inorganic

in the soil samples collected from the Round One RI. When comparing th inorganic concentrations to the USEPA Region III Risk Based Concentrati comparative purposes, none of the detected compounds exceeded the RBCs soil, except for arsenic. The RBC for carcinogenic arsenic (industrial kilogram (mg/kg); the RBC for noncarcinogenic arsenic (industrial soil) locations 16S12 and 16S14 the detected concentrations of arsenic were 1

Surface Water

Organic compounds were detected in only one surface water sample (16SW0 organics in this single sample included: 1,1-dichloroethene (2J microg 1,1-dichloroethane (5J æg/L), 1,1,1-trichloroethane (8J æg/L), phenol ((850 æg/L). Several inorganic compounds were detected in the surface w locations 16SW03, 16SW04, and 16SW05, the detected concentrations of ar chromium, copper, lead, mercury, nickel, and/or zinc exceeded the Virgi (VWQSS) and/or the federal standards under the Clean Water Act (CWA).

Sediment

Eight sediment samples were collected (four sampling locations with two each location) from depth intervals of zero to six inches and six to tw inorganics were detected in the sediment samples. The SVOCs ranged in 21J æg/kg to 1,000 æg/kg. Most of the detected SVOCs were polynuclear (PAHs). PCBs were detected in the two samples collected from sample lo detected PCB concentrations were 25J æg/kg and 59J æg/kg. Several inor detected in the sediment samples. Based on a comparison of the inorgan screening criteria, none of the inorganics exceeded the medium effects concentration of zinc (149 mg/kg) in one sample (16SD01-001) exceeded t criteria of 120 mg/kg.

Groundwater

Five groundwater samples were collected from existing wells at Site 16. and inorganics were detected in the samples. The detected VOCs include 1,1-dichloroethene, 1,1-dichloroethane, and chlorobenzene. The detected and 1,1-dichlorobenzene. The detected concentrations of these organic enforceable federal Maximum Contaminant Levels (MCLs). The explosive, sample location 16GW01 at a concentration of 1.3 æg/L. Several inorgan detected in the groundwater samples. Total inorganic concentrations fo beryllium, cadmium, chromium, iron, lead, manganese, mercury, nickel, a the enforceable federal MCLs or the Virginia Primary Drinking Water Sta

samples from at least one of the monitoring wells. The dissolved iron 16GW05 (878J µg/L) exceeded the non-enforceable federal Secondary MCL (300 µg/L). The dissolved manganese concentration detected in well 16GW0 the non-enforceable federal SMCL and the PMCL of 50 µg/L.

After the Round One RI, it was determined that additional groundwater i upgradient and downgradient of Site 16. Additional surface water, sedi macroinvertebrate, and fish population information also was needed to e environment. Also, because SSA 16 is essentially coincident with Site similar types of contaminants, additional background groundwater inform to evaluate the SSA.

Habitat Evaluation

A habitat evaluation was conducted at Site 16 in the late spring of 199 background information on aquatic and terrestrial environments was coll an ecological risk assessment.

Removal Action

A Removal Action was conducted at Site 16 in 1994. The scope of this a of dry cell carbon/zinc batteries, silica gel desiccant, surface debris

casings, and scrap ordnance located throughout the site. Approximately tons of debris, 125 tons of silica gel, and miscellaneous ordnance was Confirmation sampling was conducted to more accurately determine the ex addition, the EPA's oversight contractor conducted a sampling survey to sources of the PCBs detected in the sediments and soils during previous sampling survey demonstrated that a potential source area of contaminat Removal Action, may remain at Site 16 in the vicinity or upgradient of potential source areas were later addressed and evaluated during the Ro

The removal of surface debris extended into the subsurface soil in a sm was present at depth. Figure 3-2 identifies the approximate area/exten the areas where surficial debris was removed. As previously mentioned, study indicated that the waste at Site 16 was primarily surficial debri the debris/soil, 19 confirmation surface soil samples were collected fr at the locations identified on Figure 3-2. VOCs, SVOCs, pesticides, PC detected in many of the samples. The VOCs detected in the surface soil chloride and acetone. The detected concentrations of the VOCs ranged f they were below the USEPA Region III RBCs for both residential and indu detected in the soil samples included several PAHs and some phthalates. SVOCs were below the USEPA RBCs for industrial soil. The detected leve sample location 16SS10 (100J µg/kg) exceeded the USEPA RBC for resident detected concentrations of the pesticides were below the USEPA RBCs for residential soil. PCBs (Aroclor 1254 and Aroclor 1260) were detected i The industrial and residential soil USEPA RBCs for Aroclor 1254 are 41, 1,600 µg/kg, respectively. The industrial and residential soil USEPA R of PCBs are 740 µg/kg and 83 µg/kg, respectively. The detected levels the RBCs (both industrial and residential) except in one sample collect concentration was 2,100J µg/kg. The detected levels of Aroclor 1260 ex (industrial and/or residential) in 5 of the samples. These Aroclor 126

87J æg/kg to 1,400J æg/kg. The detected levels of inorganics were below industrial and residential).

Round Two RI

The Round Two RI, conducted in late 1994, included surface soil, subsurface water, and sediment sampling to supplement the sampling conducted in Round One RI and the Removal Action Confirmation Sampling. Sampling locations for Round Two RI are identified on Figure 3-3. Thirteen surface soil samples were collected at a depth of zero to six inches. Subsurface soil samples were collected at each of seven locations. One round of groundwater samples was collected. Surface water samples were collected from three locations, and sediment from four locations at two different depth intervals (zero to four inches). Fish and benthic macroinvertebrate samples were also collected during the Round Two RI. Additional details regarding the results of the Round Two RI are presented in (Section 6.0) section of this ROD. Graphical presentations of detected levels are shown in Figures 3-4 through 3-11.

SECTION 3.0 FIGURES

4.0 Highlights of Community Participation

The Final RI Report and the Final Proposed Remedial Action Plan (PRAP) WPNSTA Yorktown were released to the public on July 25, 1995. These documents are available to the public at the information repositories maintained at:

York County Public Library
Gloucester Public Library
Newport News City Public Library (Grissom Branch)
WPNSTA Yorktown, Environmental Directorate, Building 31-B

A notice of availability, including a brief analysis of the PRAP, was published on July 23, 1995. A public comment period was held from July 25, 1995 to August 1, 1995. In addition, an Open House and Public Meeting was held at the York County Services/Recreation Center Meeting Room, Goodneck Road, Yorktown, Virginia, on July 28, 1995. The purpose for this meeting was for the DoN, USEPA, and the Community representatives to answer questions and accept public comments on the PRAP. Responses to the written and verbal comments received during the comment period are included in the Responsiveness Summary section of this ROD. This decision document recommends remedial action for Site 16/SSA 16 chosen in accordance with CERCLA and RCRA, the NCP. The selected remedy for this Site is based on the

5.0 Scope and Role of the Response Action

The selected remedial action identified in this ROD is the final recommended action for Site 16/SSA 16. Previous actions implemented at the site have mitigated health risks and ecological effects associated with the area under the current land use for WPNSTA Yorktown. Therefore, no further remedial actions or institutional controls will be conducted at Site 16/SSA 16. As was previously

the initiation of the Round Two RI for Site 16/SSA 16, a Removal Action consisted of the removal of visible debris including bat construction debris, mine casings, and scrap ordnance. A series of con were collected as part of the Removal Action and were evaluated in the presented in the Round Two RI. The No Further Remedial Action Decision Controls was based on the results from both the Removal Action confirma Round Two RI sampling (the justification for this decision will be deta document). The institutional controls (land-use and aquifer-use restri insure that future residential use of Site 16/SSA 16 is controlled by t

Site 16/SSA 16 has been designated as OU II. The No Further Remedial A Institutional Controls is the final action for OU II. Other operable u Yorktown sites will be defined by separate investigations.

6.0 Site Characteristics

This section of the ROD presents an overview of the nature and extent o Site 16/SSA 16 with respect to known or suspected sources of contaminat contamination, and affected media. This discussion is based on the res and the Round Two RI.

Potential Contaminant Source Areas

Two major potential contaminant source areas at Site 16/SSA 16 have bee disposal areas, and the SSA 16 metal disposal area. As previously stat disposal area for wastes such as dry carbon-zinc batteries, banding mat fluid, silica gel desiccant, mine casings, scrap ordnance, and construc Action removed the surficial debris and waste, thereby, removing the po contamination from this site.

SSA 16 was used for scrap metal storage. Scrap metal had been identifi and also scattered over the ground surface near the dumpsters. As with Action removed the surficial debris, thereby, removing the potential so this area.

Identified Contaminants of Concern

Surface Soil

Surface soil was sampled at thirteen locations from a depth interval of SVOCs, pesticides, and inorganics were detected in these samples. PCBs soil samples at concentrations ranging from 40 æg/kg to 140J æg/kg. Th RBC for PCBs was not exceeded by these samples. The residential soil P exceeded in one sample at 16S18 at a concentration of 85J æg/kg of Aroc or other items previously stored on site were most likely the source of SVOCs also were detected in surface soil, but appeared to be due to ant sample (16S23) had SVOCs detected at levels exceeding the USEPA RBC for

for industrial soil. The detected benzo(b)fluoranthene and benzo(a)pyr sample were 1,700 µg/kg and 650 µg/kg, respectively. The residential s compounds are 880 µg/kg for benzo(b)fluoranthene and 88 µg/kg for benzo levels of pesticides in the soil samples were below the USEPA RBCs for residential soil. The inorganic compounds detected in the soil samples USEPA RBCs for industrial soil.

Subsurface Soil

Subsurface soil was sampled from two to three different depths at six l contaminants of concern were detected in the subsurface soil samples, i detected in the surface soil have not migrated vertically. Several ino subsurface soil. The detected inorganic concentrations were below USEP with the exception of arsenic and beryllium. The industrial soil RBC f 3.3 mg/kg. Seven subsurface soil samples contained arsenic at levels e 05, 16SB01-11, 16SB02-05, 16SB02-13, 16SB06-11, and 16SB09-02. The sam at depths between 3 and 27 feet below ground surface. The industrial s (noncarcinogenic) is 610 mg/kg. No subsurface soil sample has arsenic The industrial soil RBC for beryllium is 1.3 mg/kg. Two subsurface soi levels exceeding this value. Sample 16SB06-11 (21 to 23 feet) containe sample 16SB02-13 (25 to 27 feet) contained beryllium at 1.8 mg/kg.

Groundwater

Groundwater samples were collected from four newly installed monitoring monitoring wells. VOCs, SVOCs, pesticides, and inorganics were detecte samples. The concentrations of the detected VOCs and SVOCs were below MCLs and Virginia PMCLs. Pesticides also were detected in groundwater, were likely due to soil particles being entrained in the groundwater du inorganic compounds (total and dissolved) were detected in the groundwa throughout the site. Antimony (dissolved) and manganese (total and dis inorganics which had detected levels exceeding the enforceable federal federal SMCL. Antimony was not detected in the total fraction but was

fraction at concentrations of 13.1 µg/L (16GW06) and 19.3J µg/L (16GW05 federal MCL for antimony is 6.0 µg/L. Manganese was detected at concen 9.9J µg/L to 146 µg/L in the total fraction and from 1.9J µg/L to 114 µ The non-enforceable federal SMCL for manganese is 50 µg/L.

Surface Water

Surface water was sampled at three locations at Site 16/SSA 16. Organi detected in surface water samples. Inorganics were detected in surface concentrations were generally below the CWA criteria and the VWQSSs.

Sediment

A total of eight sediment samples were collected (four sampling locatio collected from each location) from depth intervals of zero to four inch PCBs were detected in both the surface and subsurface sediment samples immediately downgradient from the site. The presence of PCBs at this l of erosion, transport, and redeposition of PCB-contaminated surface soi

disposal area. Pesticides also were detected in sediment samples, but anthropogenic source. Carbon disulfide was detected in two sediment samples as a result of bacteriological decomposition of vegetation and other organic matter. Inorganics detected in sediment were generally at levels below the effective screening values. One sample (16SD06-02) contained copper and silver at range-low sediment screening values. The detected concentrations of copper sample were 94.8 mg/kg and 3.4J mg/kg, respectively.

Affected Media

Based on the results of Round Two RI, the affected media at Site 16/SSA are soil (PCBs), groundwater (VOCs), and sediment (PCBs).

7.0 Summary of Site Risks

As part of the Round Two RI, baseline human health and ecological risk assessments were conducted to evaluate the potential risks associated with exposure to media at Site 16/SSA 16. The baseline risk assessments considered the potential exposure for both current and future risk scenarios. A summary of both of these studies is presented below.

Human Health Risk Assessment

The human health risk assessment was conducted for four environmental media (surface and subsurface), groundwater, surface water, and sediment. COPCs (COPCs) were selected for each of these media as shown on Table COPCs were based on the Removal Action and the Round Two RI.

The potential receptors evaluated in the human health risk assessment include workers, future resident adults, future resident children, and future community resident scenario was evaluated as a conservative measure. Furthermore, development of Site 16/SSA 16 is highly unlikely given its location with Station and the newly-constructed security fence that encloses the rest

As part of the human health risk assessment, incremental cancer risk (ICR) (HI) values were calculated for each of the exposure routes and potential cancer risk. An ICR refers to the potential cancer risk that is above the background level for individuals. For example, an ICR of 1×10^{-4} indicates that exposed individuals have a probability of one in ten thousand of developing cancer subsequent to exposure over their lifetimes. USEPA considers the target ICR range of 1×10^{-4} to be acceptable. The HI value is an estimated measure of noncarcinogenic effects of exposure to an acceptable level for all COPCs. A HI less than 1.0 indicates that noncarcinogenic health effects are unlikely to occur subsequent to exposure. A HI greater than 1.0 indicates there is a potential for adverse noncarcinogenic health effects.

Table 7-2 summarizes the maximum ICR and HI values that were calculated risk assessment for Site 16/SSA 16. As shown on the table, all of the evaluated had ICRs within the USEPA's acceptable risk range. The HI value for the future residential scenario. The HIs were calculated as 1.8 for a resident and future child resident, respectively. The HI values were proportional to antimony (at 57% of the total HI). A definite source of antimony has been identified at Site 16/SSA 16.

Results of the human health risk assessment indicate that potential carcinogenic (or noncarcinogenic) adverse health effects could occur for future residents exposed to environmental media at Site 16/SSA 16. The total site risk and HI values are 1.6×10^{-4} and 7.0, respectively. These values were derived by adding the hazard indices (HIs) for every potential exposure route and affected media and receptors.

Total Site Risk

Total site risks for future potential residential adults and children are 1.6E-4 and 7.0, respectively. These risk values fall within USEPA's target risk range and are generally considered to be acceptable for most sites. The presence of groundwater and total arsenic in surface soils accounts for approximately 90% of the total risk for both children and adults.

Arsenic was detected in 24 of 26 Site 16/SSA 16 surface soil samples at 2.1 to 20 mg/kg. The upper 95% confidence value of the arithmetic mean derived for use in the baseline risk assessment, was 6.08 mg/kg. Arsenic in 44 background surface soil samples obtained from throughout the Station concentrations range from 0.46 to 63.9 mg/kg, with an upper 95% mean value of 5.7 mg/kg. In general, background concentrations of arsenic are lower than concentrations of arsenic at Site 16/SSA 16. Although the Site 16/SSA 16 upper 95% confidence value is higher than the background upper 95% confidence value, approximately 90% of the potential risks to future resident children and adults can be attributed to concentrations of arsenic in surface soils.

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Dissolved arsenic was detected in 1 of 10 Site 16/SSA 16 shallow groundwater samples at a concentration of 5.9 µg/L, well below the enforceable MCL value (and VCL). Furthermore, dissolved arsenic was detected in 2 of 18 background wells at a concentration of 5.5 µg/L. Potential human health risks associated with arsenic in groundwater at Site 16/SSA 16 can be attributed to the sporadic arsenic in shallow groundwater and not past site activities.

Total Site HIs

Total site HI values for future potential residential adults and children are 1.8 and 5.2, respectively. Adverse systemic or noncarcinogenic human health effects may occur subsequent to exposure to arsenic. The HI values of 1.8 and 5.2 for adults and children, respectively, are driven by the

antimony, arsenic and manganese in Site 16/SSA 16 groundwater samples.

Adult residents exposed to these dissolved inorganic constituents through groundwater, produce an HI value of 1.3, whereas children produce an HI of 0.57. The presence of dissolved antimony accounts for approximately 60 percent of the HI. It was detected in 2 of 10 site wells (16GW05-01 and 16GW06-01) sampled during the RI. The detected concentrations of dissolved antimony were 19.3 µg/L (at the western periphery of Site 16, 16GW05-01) and 13.1 µg/L (in an upgradient well). These values exceed the enforceable federal MCL value of 6 µg/L. However, antimony was also detected in 5 of 18 background groundwater samples in excess of the MCL value. Background dissolved antimony concentrations ranged from 1.6 to 16 µg/L. The presence of antimony in Site 16/SSA 16 groundwater samples can be a result of the occurring concentrations in Station shallow groundwater and not Site 16.

An HI value in excess of 1.0 was also derived for future resident child exposure to Site 16/SSA 16 surface soils. The inorganic constituents antimony (18%), chromium (20%) and the organic contaminant Aroclor 1254 (14%) account for 80% of the elevated HI value. Individual hazard quotient values (HQs) for these chemicals do not equal or exceed 1.0 and range from 0.2 (Aroclor 1254) to 0.3 (chromium). Health effects affected by these chemicals include the skin (arsenic), the blood (antimony) and the immune system (Aroclor 1254). Chromium, in its hexavalent (+6) form, is a known carcinogen.

skin. Therefore, only HQs for chromium and arsenic should be summed, resulting in a total HI of 0.57. This HI value falls below 1.0 indicating that systemic effects are not expected subsequent to future potential residential exposure to Site 16/SSA 16.

Summary

Although total site risk and HIs indicate that potential unacceptable effects could occur if Site 16/SSA 16 were used for residential purposes, the risks are driven by constituents that are related to background conditions at the site. The true risk for shallow groundwater which contains dissolved arsenic and antimony was detected at similar concentrations in background wells located throughout the area unaffected by Site 16/SSA 16 activities. Furthermore, shallow groundwater is not a future potable source because of the relatively low water yields from the shallow aquifer at Site 16/SSA 16 is the Cornwallis Cave aquifer.

The shallow aquifer system within York Co. is comprised of the Columbia River, Yorktown-Eastover aquifers and their associated confining units. Potable water from the shallow aquifer system are drawn from the Columbia and Yorktown-Eastover aquifers. The Columbia Aquifer is not present at Site 16/SSA 16. The Cornwallis Cave aquifer is a future potable water source due to its limited yields. (Oral communication by Mr. Inc. and Terry Wagner - Environmental Program Manager in the office of the Virginia Department of Environmental Management-VADEQ on July 17, 1995). This is also supported in A.R. Brodeur's Report "Hydrogeology and Water Quality of the Shallow Aquifers in Eastern York County, Virginia" where it is stated that the Cornwallis Cave aquifer is a public or domestic water supply.

Ecological Risk Assessment

An ecological risk assessment was conducted at Site 16/SSA 16 to evaluate the potential for operations to have adversely affected the ecological integrity of the site.

communities of or adjacent to the sites. The ecological risk assessment results from surface soil, surface water, and sediment samples collected and/or the removal action. In addition, benthic macroinvertebrate and

and identified during the field investigation. Ecological COPCs were in surface water, and sediment as shown on Table 7-3.

The ecological risk assessment was divided into aquatic and terrestrial ecosystems at risk and the data available to evaluate risk. The aquatic portion of the calculation of benthic macroinvertebrate species diversity, richness, and ecological similarity to background locations. In addition, the aquatic portion of the assessment is determining the exceedances of contaminant-specific surface water and sediment concentrations and an increase of any gross external fish pathologies.

The terrestrial portion of this assessment included the determination of specific soil benchmark values established in the literature and by evaluation of the use of terrestrial food chain models. The assessment endpoint for RA is the reduction of a receptor population or subpopulation that is associated with the site.

With respect to the aquatic ecosystem, only one inorganic compound detected exceeded screening levels and background concentrations. The sediment contained VOC, pesticides, and inorganics.

The vast majority of constituents detected in sediment samples were present in the ER-L (Effects Range-Low). None exceeded the ER-M (Effects Range-Medium) or ER-H (Effects Range-High) levels. The samples collected downstream of the site, in the stream emptying into Fryingpan Creek, showed exceedances of the ER-L. The surface water and sediment quality in Fryingpan Creek will be evaluated during subsequent studies at other WPNSTA Operable Units.

Surface soil exceedances of literature toxicity benchmark values indicate that some ecological COPCs may be adversely impacting the terrestrial flora and fauna. However, most of these studies do not take into account the soil type, its influence on the toxicity of the contaminants. For example, soil with high organic content will tend to absorb many of the organic ecological COPCs, thus making them less available to terrestrial receptors. The benchmark values are based on both field and laboratory data; therefore, the reported toxic concentrations are not always equivalent.

In addition, the majority of the benchmark values used for comparison purposes are based on a low confidence assigned to the values based on the number of studies performed and the diversity of species tested.

There is uncertainty in assessing the terrestrial environment using the data available. The inorganics in surface soil have a high degree of variability. The high inorganic concentrations in surface soil in turn magnify the uncertainty in the literature toxicity values to assess potential risk posed to the terrestrial environment.

Terrestrial uptake modeling suggested that a small potential for effect exists for quail (QI = 7.25), quail (QI = 2.96) and white-tailed deer (QI = 1.13) could be used as conservative estimates used in the modeling effort, QI values between 1

need for further remedial action to protect the health of these potential cottontail rabbit model (QI = 30.7) indicates a significant potential for the rabbit population. However, the ecological COPCs driving the risk modeling are also driving a risk to the same species when background concentration models.

The shrew model (QI = 2,250) did exceed the acceptable QI range (less than 1,000) as are other factors incorporated within the shrew model which contributed to a high degree of uncertainty involved with the use of the shrew model. Ninety percent of the shrew's diet is earthworms and the concentration of the earthworm is considered equivalent to the concentration of the ecological soil. The model does not take into account that the shrew may ingest only earthworms. In addition, the assumption that the soil concentration model assumes that all ecological COPCs in the soil are bioavailable to the shrew is very conservative, which is demonstrated by the high risk to the shrew from the concentrations. The background shrew value was calculated as QI = 891. The shrew model was conducted using background surface soil and surface water ecological COPCs for Site 16/SSA 16. In addition, some of the inorganic (aluminum and iron) are probably a result of regional conditions and not site specific. Therefore, the shrew model most likely overestimates the terrestrial risk.

SECTION 7.0 TABLES

TABLE 7-1

SUMMARY OF CONTAMINANTS OF POTENTIAL CONCERN EVALUATED IN THE HUMAN HEALTH RISK ASSESSMENT(1) SITE 16 AND SSA 16 NAVAL WEAPONS STATION YORKTOWN YORKTOWN, VIRGINIA

Contaminant of Potential Concern	Soil		Groundwater	
	Surface	Subsurface	Total	Dissolved
VOLATILE ORGANICS				
1,1-Dichloroethene				
1,1-Dichloroethane				
1,1,1,-Trichloroethane				
Trichloroethene				

Tetrachloroethene

SEMIVOLATILE ORGANICS

1,4-Dichlorobenzene

Benzo(a)pyrene

Pesticides/PCBs

4,4'-DDT

Aroclor-1254

Aroclor-1260

INORGANICS

Aluminum

Antimony

Arsenic

Beryllium

Cadmium

Chromium

Copper

Lead

Manganese

Mercury

Vanadium

(1) The contaminants of potential concern listed were developed for th

TABLE 7-2

SUMMARY OF MAXIMUM ICR AND HI VALUES CALCULATED
IN THE HUMAN HEALTH RISK ASSESSMENT
SITE 16 AND SSA 16
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

Potential Re

Environmental Media	Civilian Worker		Future Adult Resident(4)	
	ICR(1)	HI(2)	ICR	HI
Surface Soil	2.0 x 10 ⁻⁰⁵	0.29	2.7 x 10 ⁻⁰⁵	0.41
Subsurface Soil	NA(3)	NA	NA	NA
Groundwater	NA	NA	6.4 x 10 ⁻⁰⁵	1.3
Surface Water	1.1 x 10 ⁻⁰⁶	0.20	1.8 x 10 ⁻⁰⁷	0.03
Sediment	1.5 x 10 ⁻⁰⁵	0.11	2.7 x 10 ⁻⁰⁶	0.02
Totals	3.6 x 10 ⁻⁰⁵	0.6	9.4 x 10 ⁻⁰⁵	1.8

(1) ICR = Incremental Cancer Risk.

(2) HI = Hazard Index.

(3) NA = Media was not a concern for this receptor.

(4) Note that for the baseline risk assessment, the HI and ICR values resident adult and resident child HI and ICR values, respectively.

TABLE 7-3

SUMMARY OF CONTAMINANTS OF POTENTIAL CONCERN
EVALUATED IN THE ECOLOGICAL RISK ASSESSMENT
SITE 16 AND SSA 16
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

Contaminant of Potential Concern	Surface Water	Sediment	Surface Soils
VOCs			
Carbon Disulfide			
Toluene			
PESTICIDES/PCBS			
Endrin Aldehyde			
Total PCBs			
INORGANICS			
Aluminum			
Antimony			

Arsenic

Beryllium

Cadmium

Chromium

Cobalt

Copper

Iron

Lead

Manganese

Mercury

Nickel

Selenium

Silver

Vanadium

Zinc

8.0 Description of the No Further Remedial Action Decision with Instit

Description

As was previously mentioned, the selected alternative for Site 16/SSA 1 Action Decision with Institutional Controls. Because the Removal Actio mitigated potential unacceptable risks to human health and the environm predicted future land use for WPNSTA Yorktown, this alternative involve remedial actions (including sampling) at the site with the exception of restrictions and aquifer-use restrictions. The No Further Remedial Act Institutional Controls is justifiable because the conditions at Site 16 of human health and the environment. Although risk levels at Site 16/S resident scenario are within the generally accepted risk range, institu included as a conservative measure. These controls will be utilized to land use of Site 16/SSA 16 will be controlled by the DoN.

Rationale

The following section provides detailed rationale of why the No Further Institutional Controls Decision is the selected alternative for Site 16 health and ecological risk assessments indicated that potential human h

associated with Site 16/SSA 16 are limited, the DoN performed a pre-evaluation. A Feasibility Study (FS) was necessary for Site 16/SSA 16. One of the findings was to evaluate areas of concern for each of the media of concern identified in the assessments. Areas of concern were identified by comparing COPC concentrations to Commonwealth standards (or if a standard was not established for a specific remediation goal option was calculated). The sample locations that exceeded Commonwealth standards (or the risk-based value if no standard existed) they could be grouped into an area of concern. A summary of the evaluation of Site 16/SSA 16 had groundwater or surface soil areas of concern follows.

Groundwater Areas of Concern

Groundwater COPC concentrations were compared to the Federal MCLs, which are standards designed for the protection of human health, and to the Commonwealth PMCLs. Table 8-1 lists the MCLs and the Virginia PMCLs for the Site 16 COPCs. In addition, the remediation goal options calculated for the COPCs, the MCL/PMCL, the maximum detected COPC concentrations, and the sample locations where the criteria are included on the table. Based on a comparison of the COPC concentrations at Site 16/SSA 16 to the listed standards, there are no groundwater areas that require remediation.

As shown on Table 8-1, only three COPCs had detected concentrations exceeding the criteria or the remediation goal option: aluminum, antimony, and manganese. As mentioned, the detected concentrations of aluminum, antimony, and manganese were within the range of contaminant concentrations detected in WPNSTA Yorktown background reported in the Final Background Report for WPNSTA Yorktown. The background ranges for these three inorganics were 44.9 µg/L to 14,600 µg/L for aluminum; 4.5 µg/L to 413 µg/L for antimony; and 4.5 µg/L to 413 µg/L for manganese. As shown on Table 8-1, the dissolved (filtered) inorganic concentrations were significant for antimony, indicating that the inorganics are not a groundwater concern.

It also is important to note that the human health risk assessment concluded that a potential media of concern primarily due to the presence of total arsenic and dissolved antimony. The detected levels of arsenic did not exceed a Federal Secondary MCL (SMCL). The detected levels of manganese exceeded only the SMCL, which is not an enforceable regulation. The detected levels of dissolved antimony exceeded the federal MCL, but not the WPNSTA Yorktown background levels.

Therefore, based on the above-mentioned information, no areas of concern were identified in groundwater at Site 16/SSA 16 and no further remedial action other than monitoring is deemed necessary.

Soil Areas of Concern

Based on the conclusions of the ecological risk assessment, the contaminants in the surface soil samples were evaluated to determine areas of concern that require remediation at Site 16/SSA 16. With respect to ecological risks, there are no standards or criteria that can be applied to surface soil. Therefore, the results were compared to any set of standards to identify areas of concern.

The ecological risk assessment concluded that the potential risk at Site 16/SSA 16 is primarily by Aroclor 1260, aluminum, antimony, cadmium, and iron in the comparative purposes, the detected concentrations of the inorganics were compared to WPNSTA Yorktown background concentrations in soil and soil toxicity benchmarks in literature (see Table 8-2). The inorganics were detected at concentrations less than the maximum concentrations detected in the WPNSTA Yorktown background sample. The benchmark values obtained from the literature indicating that adverse effects on soil organisms may potentially occur.

Detected concentrations of PCBs at Site 16/SSA 16 do not pose unacceptable risks to the ecology. PCBs were, however, detected in the surface soil sample concentrations ranging from 34 µg/kg to 3,040 µg/kg. The DoN evaluated whether remediation was warranted. With respect to the protection of human health, PCBs were evaluated against the USEPA guidance for the cleanup of PCBs under CERCLA (which is not a regulation) suggests that PCBs be remediated to 1,000 µg/kg [ppm] for residential areas, and between 10 ppm to 25 ppm for industrial areas. The concentration of PCBs at Site 16/SSA 16 was not determined to present a future human health risk, and since the maximum detected PCB concentration was less than the suggested remediation limit for industrial areas (10 ppm to 25 ppm) did not appear to be warranted for this site for the protection of human health. Institutional controls included with the selected remedy for Site 16/SSA 16 residential use of the area. It is anticipated that the future land use purposes.

With respect to ecological concerns, the detected PCB levels were evaluated against values for effects on terrestrial flora and fauna. Adverse effects were not observed on invertebrates. There is uncertainty in assessing the terrestrial environmental values. Various inorganics in surface soil have a high degree of variability of inorganic concentrations in surface soil in turn magnify using literature toxicity values to assess potential risk posed to the environment. On this evaluation, remediation of the PCB soil did not appear to be warranted.

Therefore, based on the above-mentioned information, no areas of concern were identified in the surface soil at Site 16/SSA 16 and no remedial action other than institutional controls is necessary.

SECTION 8.0 TABLES

TABLE 8-1

SUMMARY OF CRITERIA AND RISK-BASED VALUES
APPLICABLE TO THE GROUNDWATER COPCs FROM THE ROUND TWO RI

SITE 16 AND SSA 16
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

Groundwater Contaminant of Potential Concern	Groundwater Federal MCL (µg/L)	Criteria(1) Virginia PMCLs (µg/L)	Remediation Goal Options (µg/L) (Y)
VOLATILE ORGANICS			
1,1-Dichloroethene	7	7	
1,1-Dichloroethane	--(3)	--	1,560
1,1,1-Trichloroethane	200	200	
Trichloroethene	5	5	
Tetrachloroethene	5	--	
SEMIVOLATILE ORGANICS			
1,4-dichlorobenzene	75	--	
PESTICIDES/PCBS			
Aldrin	-	--	0.47
Endrin	2	0.2	
4,4'-DDT	--	--	7.82
INORGANICS			
Aluminum	--	--	15,600
Antimony	6	--	
Arsenic	50	50	
Beryllium	4	--	
Chromium	100	50	
Manganese	50(4)	50(4)	
Vanadium	--	--	110

Notes:

- Primary risk-
- (1) Federal MCL - Federal Safe Drinking Water Act Maximum Contaminant Drinking Water Regulations and Health Advisories) and Virginia Dri
 - Maximum Contaminant Levels (Bureau of National Affairs, December,
 - (2) Remediation Goal Options were established for the COPCs that did n Virginia PMCL. They were based on an ICR = 1×10^{-4} and an HI =
 - based value is listed on the table. These values were developed i
 - (3) -- = No criteria published.
 - (4) Federal SMCL = Secondary Maximum Contaminant Level, not a promulga
 - (5) ND - Not detected.
 - (6) Antimony (total fraction) was detected during the Round One RI at

TABLE 8-2

SUMMARY OF INFORMATION USED TO EVALUATE AREAS OF CONCERN
WITH RESPECT TO THE ECOLOGICAL RISK ASSESSMENT
SITE 16 AND SSA 16
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

Primary Surface Soil Ecological Contaminant of Concern	Soil Flora and Fauna Toxicity Values(1)			
	Plant	Earthworm	Invertebrate	Microorg and Mic Proce
Pesticides/PCBs ($\mu\text{g}/\text{kg}$)				
PCBs (total)	40,000	40(2)	40(2)	NE(
Inorganics (mg/kg)				
Aluminum	50	NE	NE	60
Antimony	5	NE	NE	NE
Cadmium	3	20	3	20
Iron	100(2)	NE	3,515	20

(1) Will and Suter, 1994a and 1994b unless indicated otherwise (Values microorganisms and microbial processes are benchmarks below which are not expected. Values for invertebrates are No Observed Effect based on less data than the benchmarks)

(2) USEPA, 1995a (Region III BTAG Soil Screening Levels for Soil Fauna

(3) NE = Not Established

$\mu\text{g}/\text{kg}$ = micrograms per kilogram

mg/kg = milligrams per kilogram

9.0 Explanation of Significant Changes

The Final PRAP for Site 16/SSA 16 was released for public comment in July 1991. The No Further Remedial Action Decision was identified as the preferred alternative. Comments on the Final PRAP suggested that institutional controls be included in the No Further Remedial Action Decision to insure the future protection of human health and the environment. USEPA suggested that the institutional controls include management of the residential land use of Site 16/SSA 16 will be controlled by the DoN. The selected remedy for Site 16/SSA 16 was changed from the preferred alternative PRAP to include land-use and aquifer-use restrictions at the site.

10.0 RESPONSIVENESS SUMMARY

The selected remedy for Site 16/SSA 16 is the No Further Remedial Action Decision with Institutional Controls. Based on written comments received during the Public Comment Period, the Comments received from the audience at the Public Meeting on August 1, 1991, appear to support the preferred alternative.

The transcript of the Public Meeting is provided in Appendix A. Navy responses provided during the Public Comment Period are provided in Appendix B.

10.1 Background on Community Involvement

As part of the requirements of the Community Relations Program, community interviews were conducted from July 29 to August 1, 1991. These interviews were conducted with community, primarily through elected officials, public agencies, interest groups, citizens, of the IR Program and the sites at WPNSTA Yorktown. The interviews were conducted to obtain feedback from the community at large on the perception of the contamination at Yorktown, and on the reaction concerning the possibility that WPNSTA Yorktown is on the National Priorities List (NPL) as a Superfund Site.

A total of 26 individuals were interviewed. The WPNSTA Yorktown Public Meeting interviewed additional citizens. Attempts were made to speak with a representative of local and Commonwealth government, community groups, and environmental groups representing the area closest to the station, the community of Yorktown, and on the reaction concerning the possibility that WPNSTA Yorktown is on the National Priorities List (NPL) as a Superfund Site.

Prior to 1995, public input on environmental activities was provided by the Environmental Review Committee (TRC). In order to generate more involvement from the general public, the TRC was replaced by a Restoration Advisory Board (RAB) on March 16, 1995. The RAB discusses ongoing activities and issues at WPNSTA Yorktown. The Public Meeting for Site 16/SSA 16 was conducted in conjunction with a RAB meeting.

During the Public Meeting, three RAB members asked questions in regard

groundwater conditions at Site 16/SSA 16. These questions were answered by RAB members during the meeting (refer to Appendix A - Public Meeting Transcript).

APPENDIX A
TRANSCRIPT OF PUBLIC MEETING - AUGUST 23, 1995

1 PROPOSED REMEDIAL ACTION PLAN (PRAP)

2

3 PUBLIC MEETING for OPERABLE UNIT

4 (OU) II (SITE 16/SSA 16)

5 RESTORATION ADVISORY BOARD (RAB) MEETING

6

7 FOR THE INSTALLATION RESTORATION PROGRAM (IRP)

8 NAVAL WEAPONS STATION YORKTOWN

9 YORKTOWN, VIRGINIA

10 YORK COUNTY SOCIAL SERVICES/RECREATION CENTER

11 301 GOODWIN NECK ROAD

12 23 AUGUST 1995

13 6:30 P.M. - 8:30 P.M.

14

15 PRAP PRESENTATION SPEAKER:

16 DONALD C. SHIELDS

17

18 US GEOLOGICAL SURVEY FRAMEWORK STUDY OVERVIEW SPEAKER:

19 ALLEN BROCKMAN

20

21 COMMENTS/ANNOUNCEMENTS OF FUTURE MEETINGS SPEAKER:

22 JEFF HARLOW

23

24 REPORTING SERVICES PERFORMED BY:

25 MICHELE ANTHONY

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1 PRAP MEETING

2

3 MR. BLACK: Our new commanding officer
4 is not able to be here tonight. He's up in a so-called
5 Board of Directors Meeting for the Naval Ordinance
6 Center in Maryland. Our Executive Director, Bruce
7 Doubleday, is carrying his luggage up there for him I
8 guess. He's in attendance there as well.

9 Captain Delaplane had a change of
10 command on the 27th of June. So Captain Denham is the
11 new commanding officer right now. I'm not certain
12 whether he will designate himself to be the co-chair
13 here or --

14 MRS. NEILL: He has Tom.

15 MR. BLACK: He has? Last I heard it
16 was either he or Bruce. So right now Carolyn Neill, who
17 is head -- our environmental director is sitting in as
18 the Navy's co-chair. He's gotten appointed at least for
19 tonight.

20 We have one new member here. This is
21 the first time he's made it. Primarily, because we've
22 changed the meeting date from Thursday to Wednesday.
23 That's Yancey McGann down on the corner down there. If
24 y'all don't know Yancey, he's a former Executive
25 Director at the Weapons Station Yorktown, been there

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1 longer than I have, in fact; but retired last April the
2 1st, April Fool's day, he retired. So welcome to him
3 for being here, and y'all excuse me please.

4 What else was I supposed to say, Jeff?
5 I can't remember. I think that's it anyhow, but I'm
6 going to introduce Don Shields now. Don's going to give
7 a presentation on this board that we have been looking
8 at over here for the Proposed Remedial Action Plan on
9 Site 16, which is the West Road Landfill and Site
10 Screening Area 16, which is a scrap metal dump that we
11 used to have down near Building 402 on this station.

12 So without further ado, Don, I'll let
13 you go at it.

14 MR. SHIELDS: Thank you, Mr. Black.
15 Again, Mr. Black we at Baker Environmental really
16 appreciate the opportunity Alantic has given us to work
17 down here at Weapons Station and have the opportunity to
18 come out tonight and present our results.

19 Could we get those lights too, Tim,
20 please. And thank you all for coming out to hear us
21 give our presentation on the results of the work we have
22 been doing at Site 16 and Site Screening Area 16.

23 For those of you who were at the last
24 RAB Meeting, we had -- you'll probably recall this. We
25 gave a presentation on the work we had been doing at

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1 these sites at that time. Tonight's presentation is
2 part of the public meeting that's required now that the
3 Navy has proposed it's remedial plan for this site.
4 Because I know you have a full agenda this evening,
5 we're going to go through this a little quicker than we
6 did last time, and because you've had a chance to hear
7 this presentation before.

8 We'll briefly touch on the background
9 of the site, the Removal Action that was conducted at
10 the site in 1994, some of the previous investigations
11 including this most recent Remedial Investigation and
12 the Risk Assessment work that has been done there, and
13 spend a little more time on the Proposed Plan for
14 Remedial Action at Site 16 and Site Screening Area 16
15 that the Navy is proposing tonight.

16 Hopefully, you've had a chance to look
17 at the posters that are up. Anything that's going to be

18 presented tonight is -- that information is presented on
19 those posters and also in some of the other documents
20 that you have received, such as the Proposed Remedial
21 Action Plan, the RI Report, some of the things the RAB
22 members have gotten executive summaries for.

23 For those of you who were here at our
24 last meeting, you will recall Site 16 is a fairly small
25 site. It was used as a Surface Dumping Ground or dump

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1 site during the 1950's and the 1960's for a wide variety
2 of things, mostly scrap material, batteries, 55-gallon
3 drums, general scrap refuse as listed up here was dumped
4 on the surface there. There are some pictures of that
5 on the one poster board that we have this evening.

6 This is an aerial photo that shows a
7 couple of things. North is to the top of the screen.
8 To get you folks oriented, this is Lee Pond, Lee Road,
9 Main Road, and West Road; which the West Road Landfill
10 was named for. That's site 16. This is the Hunt Shack
11 and the archery range that those of you who have been to
12 Site 16 probably recall, and Site 16 is this wooded area
13 right along here, and overlapping the northern part of
14 it is Site Screening Area or SSA 16, which is the old
15 metal scrap yard. This is an eastern branch of Felgates
16 Creek.

17 Site Screening Area 16 was also covered
18 in this investigation that we've done. Most of you that
19 are involved in the RAB understand that the Site
20 Screening Area is a former Solid Waste Management Unit
21 or an area of concern that the Navy has agreed to
22 subject to a screening process to determine whether or
23 not a full pledged RI/FS or Remedial Investigation
24 Feasibility Study process is required for that site.
25 Because Site 16, because Site Screening

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1 Area 16 or SSA 16 overlies the northern portion of Site
2 16, they were lumped together and investigated in one
3 group over the past year.
4 Site Screening Area 16, the building
5 402 Metal Disposal Area, is also a small site. It is
6 only an acre in size it overlies the northern portion of
7 Site 16 and mostly scrap metal and some empty drums and
8 other material of that nature was disposed of there.
9 This is an aerial photo that shows Site
10 Screening Area 16 in close-up. This is a view that's
11 opposite to the last photo you saw or any of the maps
12 that you have probably seen for the sites. We're
13 looking south this time. Here's Lee Pond down here or
14 up here, excuse me. Lee Road, West Road and this gives
15 a good close-up view of Site Screening Area 16. This is

16 where the scrap metal was piled up at one time, and it
17 has since been removed, not as a Removal Action, but as
18 a general housekeeping action that has taken place by
19 the Bay Station.

20 Site 16 would be located down in this
21 wooded area right along in here. Here's the archery,
22 the open archery area Site 16 and the Hunt Shack would
23 be just off the -- out of the photo. Mr. Harlow didn't
24 lean out of the helicopter far enough when he was taking
25 it or we would have picked up the Hunt Shack in the

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1 photo.

2 Site 16 and all of the other sites at
3 the Weapons Station have been investigated from an
4 environmental perspective. It's been -- they have been
5 put through a battery of investigations over the past
6 ten years. These include an Initial Assessment Study,
7 which was a base-wide study to determine what sites
8 might need actual work done at them.

9 Confirmation studies, which after those
10 sites were selected people -- contractors went out and
11 actually collected samples, Biological Sampling and Risk
12 Evaluation was done on the streams and Lee Pond to
13 determine the risks that had to do with the consumption
14 of fish and shellfish at the Weapons Station, but the

15 investigation that started focusing in on Site 16
16 proper, which we are going to talk about tonight,
17 started in 1992 when a Round I Remedial Investigation
18 was conducted.

19 We went into that in pretty good detail
20 during the last RAB Meeting. The Round I Remedial
21 Investigation, which was conducted back in '92, included
22 soil, groundwater, surface water, and sediment samples.
23 The results of that investigation indicated that in
24 order to fully complete a Human Health Ecological Risk
25 Assessment, that additional data was going to need to be

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1 collected.

2 Well, after the Round I had taken
3 place, but before any further additional investigation
4 work was done, the Navy proceeded with a Removal Action
5 at Site 16. The batteries and the scrap metal and
6 ordnance and all of those sorts of things were removed
7 from the surface of Site 16 last year.

8 The poster that the Navy provided on
9 the side has, again, some good photos of the material
10 that's been removed and also includes the before and
11 after photo of the Removal Action.

12 At the last meeting, Greg Hatchett from
13 LANTDIV had a video here, and it went through the

14 Removal Action process at the sites on the Weapons
15 Station, and there was some footage of the work done at
16 Site 16 at that time.

17 As well as after the Removal Action was
18 completed and all the scrap materials taken away,
19 samples were collected of the surface soil in order to
20 evaluate how successful that was in removing the sources
21 of contamination, the potential contamination at Site
22 16. Those are referred to as Confirmation Samples or
23 Surface Soil Confirmation Samples. And that's important
24 because in the subsequent work that we have done, over
25 the last year, the Round II Remedial Investigation, that

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1 data has been put to work again and used as part of that
2 data set.

3 The Round II Remedial Investigation was
4 conducted, the field work was initiated for that last
5 summer after the Removal Action was completed. This
6 public meeting is part of that project, that Round II
7 Remedial Investigation and subsequent other documents
8 that we have been working on and providing to you.

9 The Round II Remedial Investigation
10 included collection of soil, groundwater, surface water,
11 and sediment samples. In addition to that, fish and
12 benthic macroinvertebrates were collected. Benthic

13 macroinvertebrates is a fancy word for bugs and worms
14 that live in the streams that are down in the sediment.

15 In addition as I mentioned, the
16 confirmation samples that were collected during the
17 Removal Action were also incorporated as part of that
18 data set for the Round II Remedial Investigation. All
19 the data we generated was compared to background
20 results, and at our last meeting Rich Hoff from Baker
21 presented a brief talk on what the background
22 investigation was about at Weapons Station.

23 Basically, it involves collecting
24 samples in areas that are located far away from the
25 sites of concern to determine what the soil,

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1 groundwater, surface water, and sediment are naturally
2 away from any man-made impact. For instance as we know,
3 as we have talked about before, lead occurs naturally in
4 soil. We need to be able to tell whether or not lead we
5 find in the soil samples at one of our sites is due to
6 the natural nature of the material or if it has to do
7 with something from, like, paint or batteries that have
8 been disposed of at a site. All the data we generated
9 during the Round II RI was compared and evaluated
10 against that background data set.

11 The main purpose of collecting all the

12 data and all the evaluation associated with the Round II
13 Remedial Investigation is to basically conduct a Human
14 Health and Ecological Risk Assessment to determine
15 whether or not there are any risks associated with Site
16 16 or Site Screening Area 16.

17 For the Human Health Risk Assessment,
18 we grouped those -- we conduct that -- we group
19 potential folks that could be affected by the site into
20 four different groups or what we call scenarios. That
21 would include on-site adult workers, folks that may be
22 out and about on the site doing maintenance of some kind
23 or another as part of the land management.

24 We've also constructed this Risk
25 Assessment model assuming that if there was a housing

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836 Westminster Lane, Virginia Beach, VA (804) 486-2487

1 development that was set up on Site 16 or SSA 16, what
2 would the impact be to long-term resident adults or
3 resident children if they were out on the site as it
4 stands now, and another model was for construction
5 workers that might be doing any building activities out
6 there in the future.

7 The results of the Human Health Risk
8 Assessment are the following: There are no immediate
9 threats to human health from the media at 16 or Site
10 Screening Area 16. There are some possible threats to

11 long-term residents if the site were to be used for
12 housing. That's a very conservative -- that's according
13 to a very conservative scenario.

14 The risk is driven mainly by arsenic,
15 antimony, and manganese in the shallow groundwater that
16 is underneath the site right now. These are chemicals
17 that occur naturally and were detected in the
18 background, in the background study, and it's also
19 important to note that the shallow aquifer is not used
20 in this area as a water supply due to its low yield and
21 its poor quality.

22 And the quality has nothing to do with
23 any kind of contamination or anything like that. It's
24 just the shallow groundwater just doesn't pump at a very
25 high rate, it's muddy, et cetera; and it just doesn't

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836 Westminster Lane, Virginia Beach, VA (804) 486-2487

1 provide a good, clean water supply. So it's not
2 something that's generally used in this area.

3 The Ecological Risk Assessment was
4 conducted on surface soil and surface water and sediment
5 in the vicinity of Site 16 and SSA 16. The aquatic and
6 terrestrial environments, i.e. water up on the land,
7 were both evaluated, and it was determined that there
8 was no unacceptable risk to the environment based on the
9 results of the Round II Investigation.

10 One of the other things that Greg
11 Hatchett talked about at the last meeting was the CERCLA
12 Process, CERCLA or Superfund Process, how we go through
13 evaluating these sites. The Navy also has a process
14 that is referred to as the Installation Restoration
15 Process, and the Navy's designed that to mirror the
16 CERCLA Process.

17 I put this up so we could see where the
18 Remedial Investigation and some of the work we have been
19 doing at Site 16 and SSA 16 fits in with this process.
20 At first, we go out to the site, collect, get our data,
21 get a grip on what the nature and extent of
22 contamination and potential risks might be to human
23 health and the environment at this site. That's the RI
24 or the Remedial Investigation.

25 After that is done, a Feasibility Study

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836 Westminster Lane, Virginia Beach, VA (804) 486-2487

1 is done, and what a Feasibility Study is, it takes areas
2 of concern or areas in contamination at the site, and it
3 evaluates what would be the best cleanup or Remedial
4 Action that could be conducted.

5 If we had like an area, say the size of
6 in-between these tables here that the soil was
7 contaminated with a solvent, for instance, we might
8 evaluate digging up the soil and disposing of it in a

9 landfill or digging up the soil and disposing of it in
10 an incinerator or something along those lines, and all
11 of those options are evaluated, and the pros and cons
12 and the costs and benefits of those are presented.

13 After that's been completed, the Navy
14 will select its Proposed Remedial Action Plan or PRAP of
15 all those remedies that were talked about in the
16 Feasibility Study. It picks the one that it feels is
17 the best in accordance with all the criteria that Greg
18 went over last week, and when that's finally completed
19 and there has been public input to that, a Record of
20 Decision is signed, and that's the final document. The
21 decision is signed off on how one of these sites are
22 going to be handled.

23 Site 16 and Site Screening Area 16 are
24 a little bit different than that. Because we found no
25 immediate threats to human health through the

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836 Westminster Lane, Virginia Beach, VA (804) 486-2487

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1 environment, and there were really no areas of concern
2 that we could go out and put a hand on a site, like,
3 this is a site of contaminated soil or this is a plume
4 of contaminated groundwater, there was really no area of
5 concern that needed to be evaluated. Or where we had to

6 pull out all of these remedial options and weigh them
7 against each other.

8 So what the Navy has done is, they have
9 went past the Feasibility Study stage. A Feasibility
10 Study wasn't done for Site 16 and Site Screening Area
11 16, but they move directly into their Proposed Remedial
12 Action Plan, and the Proposed Plan for Site 16 and Site
13 Screening Area 16 is as follows: The plan is no further
14 Remedial Action with Institutional Controls.

15 Now, that has two parts to it. The no
16 further Remedial Action part says that no further
17 Remedial Action is necessary because the Removal Action
18 that removed all the material that had been dumped there
19 on the surface has been successful in removing sources
20 of potential contamination which might affect human
21 health or the environment.

22 The Institutional control part has to
23 deal with the fact there were some, according to these
24 conservative models, some potential risks associated
25 with long-term residencies at the site if it were ever

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1 to be used in the future as a residential complex.
2 Those sort of controls on land use and water supply use

3 are in -- on non federal facilities are done through
4 deed restrictions. On a federal facility such as this,
5 it would most likely be done through their master plan.

6 As you may recall at the last meeting
7 when we made this same presentation, the Proposed Plan
8 was just no further Remedial Action at that time. The
9 Institutional Control part is something that the Navy
10 has agreed to add on to that based on comments they have
11 since received on some of their draft documents from the
12 United States Environmental Protection Agency, but it's
13 not just the Navy and the Environmental Protection
14 Agency or the Commonwealth of Virginia, folks, that are
15 the only ones that has say in this. The public has
16 input on the selected remedy as well.

17 And to conclude tonight, I will just
18 touch on these few points: The public is always
19 encourage to participate in the decision-making process,
20 and you have several opportunities to do that.

21 We're right now in the middle of a
22 formal public comment period that's require under the
23 CERCLA Process, and that was announced in the local
24 newspaper.

25 This public meeting that we're here

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1 tonight for is part of that. Comments can be submitted
2 on this plan, either verbally this evening in the form
3 of questions or otherwise commenting to the folks from
4 LANTDIV or Mr. Black from the Station. We can have
5 also -- you can also submit your comments in a written
6 form.

7 If you had a chance on your way in, you
8 may have noticed that there has been a fax sheet, which
9 is a good plain-language summary of some of these things
10 we have been talking about tonight, and there is
11 information in there an public participation, not only
12 about the repositories where all the information is
13 stored, but on ways you can contact Mr. Black
14 specifically in order to provide any comment to him that
15 you may have on any aspect of this particular project.

16 When all of those comments, either the
17 verbal ones tonight, which are going to be recorded by
18 the stenographer or anything that is written is provided
19 to Mr. Black, those are all responded to in what's
20 called a Responsiveness Summary. That's a section of
21 the final Record of Decision or ROD. Those of you who
22 may receive draft versions of a Record of Decision,
23 you'll see a Section 11, which says Responsiveness
24 Summary.

25 It's blank for now because we haven't

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1 had public comments yet. That's what we're getting
2 tonight, and when those are responded to, those will be
3 put in the final Record of Decision, which is signed off
4 on by the Navy and the US EPA, and that's the end of my
5 talk this evening.

6 Jeff, I don't know if you want to go to
7 break or if you have questions that we'll be happy to
8 answer them.

9 MR. HARLOW: Questions and answers.

10 MR. SHIELDS: Mr. Black?

11 MR. BLACK: I agree.

12 MR. HARLOW: If there are no questions
13 we can take about a ten minute break.

14 MRS. ROGERS: Does the Biological
15 Sampling that is done at this particular site, is that
16 interrelated to any other Biological Sampling of any
17 other site that is impacted on, say, Felgates Creek?

18 MR. SHIELDS: At this time, it is part
19 of a data base --

20 MRS. ROGERS: Okay.

21 MR. SHIELDS: -- that eventually will.
22 This in the first one of the Round II Remedial
23 Investigations that have been done. For instance, Site

24 12, site 6 and 7 and a whole host of other sites are in
25 the pipeline in different stages. This was the first

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1 one to cross the finish line so to speak and get to this
2 stage, but that's part of the data base that's going to
3 be available to the EPA, the state, and the public in
4 order for them to evaluate things like Felgates Creek,
5 et cetera over time.

6 MR. HOFF: Don, if I may?

7 MR. SHIELDS: Yeah, sure, Rich.

8 MR. HOFF: One of the things that EPA
9 has stressed is trying to stay away from a snapshot
10 understanding of what's going on.

11 MR. SHIELDS: Rich, you're going to
12 have to speak up.

13 MR. HOFF: One of the things EPA has
14 stressed is to try to stay away from the snapshot
15 evaluation of a habitat or a potential ecological risk.
16 What we're doing right now is, we compile this
17 information. There are sites upstream and on Felgates
18 proper, and there are also downstream locations, such as
19 Lee Pond, that are in the pipeline, and they will be
20 evaluated.

21 And so what we'll be doing with those
22 is, we're looking at the data. We'll be checking to see

23 that there is potential for secondary sources and
24 migration of contamination to off-site areas, and so it
25 will be evaluated in more of a wholistic fashion as time

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1 goes by.

2 MR. SHIELDS: Yes, sir, may I have your
3 name for the stenographer?

4 MR. HAVEN: Site 16, you said the
5 groundwater was not quite acceptable for residential
6 development. Site 16, I guess, you said was maybe an
7 acre or --

8 MR. SHIELDS: It's about five acres in
9 size.

10 MR. HAVEN: Five acres. Now, in terms
11 of that five acre place wouldn't it be reasonable to
12 suppose that the groundwater has spread a little bit
13 backwardly? So a little bit more of the groundwater is
14 impacted other than five acres right underneath that
15 site?

16 MR. SHIELDS: Actually, not at this
17 site. The data that we had to use to put into this risk
18 model, we -- no one well on our site had the same
19 contaminants twice. It was like a little bit here of,
20 like, arsenic, and then antimony in another one, and
21 manganese in another one. That's why we didn't have

22 what we call an area of concern.

23 There was no -- there are strict
24 guidelines that are promulgated by the US EPA on how a
25 Human Health Risk is conducted that we have to follow.

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1 and so that's why when we say this, we say that it's a
2 conservative picture that we're presenting to you, but
3 there is no plume or there is no area we can draw a
4 circle on a map saying, okay, this is where our antimony
5 problem is. That's just not the case, and there are
6 wells surrounding that that indicates that there is no
7 sort of --

8 MR. DEWING: Let me ask a question so I
9 can clarify something. What depth were the samples, the
10 water samples taken, so-called wells?

11 MR. SHIELDS: I would say approximately
12 30 to 40 feet below the ground.

13 MR. DEWING: So a depth of 30-40 feet?

14 MR. SHIELDS: Yes, sir.

15 MR. DEWING: Groundwater?

16 MR. SHIELDS: Yes, sir.

17 MR. DEWING: Not down in the Yorktown
18 aquifer?

19 MR. SHIELDS: No, sir.

20 MR. DEWING: If my memory is correct,

21 York County does not allow groundwater wells anymore.

22 MR. SHIELDS: I am not aware of that,
23 sir.

24 MRS. ROGERS: Yes, they do.

25 MR. DEWING: Groundwater wells?

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1 MRS. ROGERS: You mean a well that I
2 would put in if I were going to build a house and
3 couldn't get water?

4 MR. DEWING: You would have to go down
5 to the Yorktown aquifer like I am --

6 MRS. ROGERS: No, not in the north part
7 of the county. They just allowed 120 residencies on two
8 acres each that are going to have wells.

9 MR. DEWING: How deep?

10 MRS. ROGERS: I don't know.

11 MR. DEWING: That's the point.

12 MRS. ROGERS: I don't know the depth.

13 I just know there are two wells that are already being
14 put in by the county they are running 250-275 feet.

15 MR. DEWING: Okay. Fine that's not
16 groundwater.

17 MRS. ROGERS: That's what I was asking.
18 Yet 60 feet would be considered the groundwater up in
19 the upper part of the county.

20 MR. DEWING: You just said they are 200
21 and some odd feet.

22 MRS. ROGERS: These are the deep wells
23 that are going to support the --

24 MR. DEWING: Well --

25 MRS. ROGERS: But that's within a half

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1 mile of where the lots are going to be developed where
2 they are going to put the other wells. So I can't tell
3 you now.

4 MR. DEWING: Let me put it this way,
5 Betty, I'm not familiar with the rules in the north part
6 of the county, the northern end up there, but in this
7 part down here you cannot have a shallow well.

8 MRS. ROGERS: Uh-huh.

9 MR. DEWING: For family consumption, we
10 have to go down to the Yorktown aquifer. If you have a
11 well, you have to have a Class 3 well rather than Class
12 2. So you know water at 10, 20, 30 feet is not really
13 even usable.

14 MR. SHIELDS: That's correct. Really
15 it would pump at such a low level you really couldn't
16 use it for --

17 MR. DEWING: That's a secondary point.

18 MR. HARLOW: Any other questions?

19 Let's us take a ten minute break, and we'll start the
20 RAB Meeting, and I'll do a couple items and introduce Al
21 Brockman.

22 (PRAP presentation was concluded.)

23

24

25

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836 Westminster Lane, Virginia Beach, VA (804) 486-2487

APPENDIX B
RESPONSE TO COMMENTS RECEIVED DURING
THE PUBLIC COMMENT PERIOD

RESPONSE TO COMMENTS SUBMITTED BY USEPA REGION III
ON THE
DRAFT PROPOSED REMEDIAL ACTION PLAN
COMMENT LETTER DATED JULY 25, 1995

SITE 16 AND SSA 16, NAVAL WEAPONS STATION YORKTOWN,
YORKTOWN, VIRGINIA

Specific Comments

1. Institutional Controls have been added to the proposed plan. The s Site 16/SSA 16 is now "No Further Remedial Action Decision with Ins The Final Record of Decision (ROD) reflects this.
2. Please refer to response to Specific Comment No. 1.
3. The shallow aquifer system within York County is comprised of the C Cave and Yorktown-Eastover aquifers and their associated confining sources from the shallow aquifer system are drawn from the Columbia Eastover aquifers. The Cornwallis Cave aquifer is not used as a po to its limited yields. (Oral communication between Baker Environme Wagner-Environmental Program Manager in the office of Groundwater M VADEQ on July 17, 1995). This is also supported by D.L. Richardson "Hydrogeology and Water Quality of the Shallow-Groundwater System i County, Virginia" where it is stated that the Cornwallis Cave Aquif or domestic water supply.

The Final ROD includes a discussion of this information.

4. Please refer to response to Specific Comment No. 3.
5. Please refer to response to Specific Comment No. 1.
6. This will be noted in the Final ROD.
7. Please refer to response to Specific Comment No. 7.

RESPONSE TO COMMENTS SUBMITTED BY THE BIOLOGICAL TECHN
ASSISTANCE GROUP (BTAG)
ON THE
DRAFT PROPOSED REMEDIAL ACTION PLAN AND
DRAFT RECORD OF DECISION
COMMENT LETTER DATED JULY 27, 1995

SITE 16 AND SSA 16, NAVAL WEAPONS STATION YORKTOWN,
YORKTOWN, VIRGINIA

The selected remedy for Site 16/SSA 16 is the No Further Remedial Action Institutional Controls. No sampling or long-term monitoring of any of is proposed.

PCBs have been detected in low concentrations in site surface soils and drainage ditch at the southern boundary of the site. It is important that not detected in the downgradient sample locations in Felgates Creek in or Round Two (1994) Remedial Investigation. The potential for erosion concentrations of PCBs from Site 16/SSA 16 into Felgates Creek proper is

RESPONSE TO COMMENTS SUBMITTED BY USEPA REGION III
ON THE
DRAFT RECORD OF DECISION
COMMENT LETTER DATED JULY 27, 1995

SITE 16 AND SSA 16, NAVAL WEAPONS STATION YORKTOWN,
YORKTOWN, VIRGINIA

General Comments

1. Tables and Figures will be placed at the end of each section.
2. This information will be provided in tabular format in the Final ROD
3. The text of the Final ROD has been restructured in response to this
4. Changes made to the RI/BRA and Proposed Remedial Action Plan will be

the Final ROD.

5. These figures have been added to the Final ROD.
6. Discussion of the Feasibility Study (FS) in Section 8 is limited to conducting a FS.

Specific Comments

1. Institutional controls have been added to the Proposed Plan. The s Site 16/SSA 16 is now "No Further Remedial Action Decision with Ins The Final ROD reflects this.
2. The text has been modified in accordance with this comment.
3. Please refer to response to Specific Comment No. 1.
4. Please refer to response to Specific Comment No. 1.
5. The title of this section has been changed from "Types of Contamina Contaminants of Concern." Please refer to response to General Comm
6. Please refer to response to Specific Comment No. 1.
7. Please refer to responses to General Comment No. 4 and Specific Com
8. This section has been modified to include a discussion of the Insti now included in the selected remedy in response to unacceptable ris the future child resident scenario.

RESPONSE TO COMMENTS SUBMITTED BY USEPA REGION III
ON THE
DRAFT REMEDIAL INVESTIGATION REPORT
COMMENT LETTER DATED AUGUST 8, 1995
SITE 16 AND SSA 16, NAVAL WEAPONS STATION YORKTOWN,
YORKTOWN, VIRGINIA

General Comments

1. A QA/QC Report will be submitted to EPA prior to submittal of the F Decision (ROD).
2. Based on consultations with EPA personnel, a Monte Carlo simulation performed.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Office of Superfund
Robert Thomson, P.E.
Mail Code 3HW71

Direct Dial (215) 597-1110
FAX (215) 597

Date: July

Ms. Brenda Norton, PE
Atlantic Division, Naval Facilities Engineering Command
Environmental Quality Division
Code: 1822
Building N 26, Room 54
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Naval Weapons Station, Yorktown, Va.
Site 16 and Site-Screening Area 16
Review of draft final Proposed Plan

Dear Ms. Norton:

The U.S. Environmental Protection Agency (EPA) has completed its review of the Proposed Plan for Site 16 and Site-Screening Area (SSA) 16, located at the NPL site (WPNSTA), and we offer the following comments:

Specific Comments

1) Page 10, last paragraph

Please note that there are calculated HI values of 1.8 and 5.2 for scenarios at Site 16/SSA 16. For systemic toxicants, the acceptable HI has been exceeded for the adult and child residential scenario at Site 16/SSA 16. Therefore, in light of the statement that Site 16/SSA 16, the systemic toxicant exposure level to surface soil residential scenario is unacceptable under the NCP (40 CFR 300.43

Please note that EPA cannot concur with the "no further action scenario" controls being implemented for Site 16/SSA 16, given the exceedances. Controls should be included in the final Proposed Plan and Record of Decision. EPA has previously requested that a paragraph be added to the final Proposed Plan institutional controls proposed for implementation at Site 16/SSA 16:

- (1) Maintaining the existing fencing and continued use of existing
- (2) Addition of language to the WPNSTA Master Plan describing the future residential use of Site 16/SSA 16, etc.

2) Page 11, 3rd paragraph

The statement "...is highly unlikely given its location within the restricted area constructed security fence that encloses the restricted area." is

additional statement needs to follow describing the mechanism, i.e. be used to insure that future residential use of Site 16/SSA 16 is measures serve to alert future users to the residual risks present

3) Page 15, 1st paragraph

The rationale behind this paragraph is not well stated, nor is the the paragraph, or delete it from the final version.

4) Page 19, 2nd paragraph

This paragraph should be modified, emphasizing whether the use of t are restricted by the State of local government.

5) Page 20, 3rd paragraph

With a HI of approximately 2.0 for surface soil and a total HI of 5 scenario, EPA disagrees with this conclusion given no institutional

6) Table 1

Please include the fact that Table 1 includes confirmation sampling in the footnote.

7) Table 4

Please, if appropriate, include a footnote stating that Table 4 inc from the Removal Action.

This completes EPA's review comments on the draft final Proposed Pl at the WPNSTA. If you have any questions, please feel free to call me

Sincerely,

Robert Thomson, PE
VA/WV Superfund Federal

cc: Steve Mihalko (VDEQ, Richmond)
Jeff Harlow (WPNSTA, Code 09E)
Paul Leonard (USEPA, 3HW71)
Nancy Rios (USEPA, 3HW13)
Bruce Rundell (USEPA, 3HW13)
Bob Davis (USEPA, 3HW13)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Yorktown NWS: PRAP and Draft ROD for
OU-2, Site 16, and Site Screening Area
16

DATE: 7-27-9

FROM: Robert S. Davis, Coordinator (3HW13)
Biological Technical Assistance Group

TO: Robert G. Thomson, RPM (3HW71)
Va./W. Va. Fed. Fac. Sect.

The BTAG has reviewed the PRAP and offers the following comments on behalf of the FWS, NOAA, and EPA members.

Data from the RI indicate that substantial contamination has not been transported from the site to drainage ditches via groundwater, sediment, or surface water. At some locations in the drainage ditch and tributary to Felgates Creek, concentrations of contaminants slightly exceeded their ERL screening guidelines, indicating that some off-site migration of contaminants may have occurred, or may presently be occurring. However, the site does not appear to present a substantial threat to ecological receptors, although there are protective measures that should be taken to ensure that migration of contaminants from the soil into surface water bodies will not pose a threat to aquatic organisms in the future.

Overall, the PRAP did not address the risk to aquatic organism via contaminant migration, nor did it present a clear rationale for eliminating areas of concern for terrestrial organisms exposed to surface soil contamination. Evaluation of any potential for risk may be folded into monitoring plans recommended below.

The following are recommendations which, if followed, should clarify the overall conclusions made in the PRAP and address the issue of protection of aquatic resources downstream from the site:

The PRAP should provide a rationale as to why remedial action is not considered necessary when concentrations of both inorganic substances and PCBs in soils were higher than benchmark values and observed effects concentrations for terrestrial organisms.

After the removal action, surface soil sampling was conducted throughout the site. Two of the soil samples collected from near the drainage ditch contained elevated concentrations of

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contaminants (these data were presented in the Round Two RI Report, April 1995).

At 16SS110, a location that appears to be very close to the ditch, the following contaminants were detected: cadmium at 66.5 mg/kg; copper at 1,440 mg/kg, zinc at 1,060 mg/kg, and PCBs at 3.0 mg/kg. In addition, soil screening using immunoassay for PCBs during the removal action sampling showed 6 of the 11 samples screened measured positive for PCBs, with five of the positive detections located in the reach from the origin of the drainage ditch to approximately 22 meter south along the drainage ditch. In the PRAP, it was stated (pg. 6) that this potential source area was later addressed and evaluated during the Round Two RI. However, this area was not represented by any of the Round Two sampling locations.

This area may be a source of contamination to the drainage ditch if there is a potential for erosion, or if surface water or groundwater infiltrates through the soil and migrates into the ditch, but it does not appear that this potential source of contamination has been adequately addressed. To ensure protection of aquatic organisms, additional sampling should be conducted in this area to fully identify the nature and extent of contamination and the potential for transport of contaminants into the ditch. Based on the results, removal or containment of soil near the ditch may be needed, but the sampling effort can become part of the monitoring plans, at least initially.

While the level of contamination at Site 16 is relatively low when compared to available guidelines and criteria, some concern is raised over the location of sediment sample number 16SD07. This location may be receiving low levels of contamination from the site. We previously recommended that additional sampling should be considered to determine whether results from 16SD07 represent a hot spot of contamination, or whether the contamination in this area is more widespread. A judgement can be made to include this either as a individual effort or as part of the monitoring plans.

We also recommend some long-term monitoring at those locations where contamination has been identified. This can be planned for coordination with monitoring at other sites in the facility so that extra efforts do not have to be mounted. In addition, the monitoring can be carried out once every five years rather than every year. Finally, monitoring can be justified on the grounds

that action has already been taken in the form of removal.

This concludes BTAGs comments on the PRAP and Draft ROD for Site 16 and SSA 16 located at the Naval Weapons Station - Yorktown.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Office of Superfund
Robert Thomson, P.E.
Mail Code 3HW71

Direct Dial
FAX (215) 597

Date: July

Ms. Brenda Norton, PE
Atlantic Division Naval Facilities Engineering Command
Environmental Quality Division
Code: 1822
Building N 26, Room 54
1510 Gilbert Street
Norfolk, Va 23511-2699

Re: Naval Weapons Station, Yorktown, Va.
Site 16 and Site-Screening Area 16
Review of draft Record of Decision

Dear Ms. Norton:

The U.S. Environmental Protection Agency (EPA) has preliminarily reviewed the Record of Decision for Site 16 and Site-Screening Area (SSA) 16, located at the NPL site (WPNSTA), and we offer the following comments:

General Comments

- 1) Please incorporate tables and figures into the text of the draft record of Decision, instead of placing them at the end of the document.

- 2) Throughout the draft Record of Decision, there are vague descriptive chemicals detected at Site 16 and SSA 16, such as "...relatively low are typical of concentrations found..." instead of listing specific. Please use specific concentrations or concentration ranges in the rather than general descriptive verbiage. Also, for the ROD, length constituents were found at the site by media, along with the concentration required. A table outlining these facts much simpler, easier to read is all that is needed.
- 3) There is too much discussion of "background" concentrations early in The Record of Decision should, first, concentrate on critical decisions defining acceptable/unacceptable risk, noting MCL exceedances, and all critical decision pathways have been evaluated, and the need for evaluation/comparison of "background" concentrations to COCs should if remediation can effectively reduce risk at a site.
- 4) Please incorporate appropriate changes to the draft revised Record made to the RI/BRA and Proposed Plan for Site 16/SSA 16.
- 5) It would be extremely beneficial to have a figure(s) depicting the COCs by media, and the corresponding detected concentrations. The

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the focus it need on identifying COCs. Similar figures have been reports for the Naval Base-Norfolk. These figures do not necessarily contaminant-specific arrangement is similar to what EPA has in mind should be on COC identification at the site, and this focus should be in the ROD.

- 6) Discussion of a "FS" in Section 8 should probably be eliminated.

Specific Comments

- 1) Page 1 - Description of Selected Remedy

Please include a statement in the draft revised ROD explaining that to Site 16/SSA 16, under the child residential scenario, presents health and that institutional controls will be utilized at Site 16 residual risks at Site 16/SSA 16, and to insure that future residence controlled by the Navy.

Also, please include a brief statement in the draft revised ROD describing to be implemented at Site 16/SSA 16.

- 2) Page 2, Section 1, 2nd paragraph

The sentence "...at Site 16/SSA 16, since no areas of concern were changed to something similar to "...at Site 16/SSA 16, since no unknown the environment was present at the site under the current and previous Weapons Station, i.e. industrial..."

- 3) Page 3, Section 1, 2nd paragraph

See Sepcific Comment No. 1

- 4) Page 10, Section 5

See Specific Comment No. 1

- 5) Page 11, Types of Contamination

The focus of the ROD should be to present COCs for each media along concentration range of each identified COC. Thus, the title of the "Types of Contamination" to "Identified Contaminants of Concern". not determined to COCs should not be included under this section, presented earlier in table form, if at all. Also, background reference point in the document, but later.

- 6) Page 16, Section 8

See Specific Comment No. 1

- 7) Page 19, 2nd paragraph

It is a given that this section will be modified based upon change Proposed Plan for Site 16/SSA 16. However, this paragraph should

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comment no. 1, and should emphasize the current and future predicted Naval Weapons Station.

- 8) Section 8

Since there appears to be a unacceptable systemic toxic exposure level under the child residential scenario for both surface soil and groundwater expanded to clearly define what threats to human health each media. There appears to be adequate discussion of the groundwater pathway overlooked. Of the total re-calculated HI value of 5.2 presented HI contributes approximately 38 % of (HI value of 2) to the overall attention.

This completes EPA's preliminary review comments on the draft Record of Decision, located at the WPNSTA. It is anticipated that changes to the text 16/SSA 16 are needed to reflect the changes made to the RI/BRA and Prop therefore, the draft version of the Record of Decision has not been circulated. Instead, EPA requests that a revised draft Record of Decision be prepared along with incorporating necessary changes to reflect modifications made and sent to EPA for full review.

If you have any questions, please feel free to call me at (215) 597-11

Sincerely,

Robert Thomson, P
VA/WV Superfund F

cc: Steve Mihalko (VDEQ, Richmond)
Jeff Harlow (WPNSTA, Code 09E)
Paul Leonard (USEPA, 3HW71)
Nancy Rios (USEPA, 3HW13)
Bruce Rundell (USEPA, 3HW13)
Bob Davis (USEPA, 3HW13)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Office of Superfund
Robert Thomson, P.E.
Mail Code 3HW71

Direct Dial (215
FAX (215) 597

Date: Augus

Ms. Brenda Norton, PE
Atlantic Division, Naval Facilities Engineering Command
Environmental Quality Division
Code: 1822
Building N 26, Room 54
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Naval Weapons Station, Yorktown, Va.
Site 16 and Site Screening Area 16
Review of draft final Round Two Remedial Investigation & Baseline

Dear Ms. Norton:

The U.S. Environmental Protection Agency (EPA) has reviewed the Na Remedial Investigation and Baseline Risk Assessment for Site 16 and Sit the Naval Weapons Station-Yorktown (WPNSTA) NPL facility, along with th letter to EPA's June 26 review comments. Based upon that review, EPA h suggestions to offer on the draft final document:

GENERAL COMMENTS

1. A Quality Assurances and Quality Control (QA/QC) Report is not pro

data are provided for Sites 16 and Site Screening Area 16 but it a data quality was not provided in the draft final document. The Na states that a QA/QC report for Site 16/SSA 16 will be submitted se that will include Sites 6, 7, 12, and Background as well as Site 1 EPA. If EPA concurrence on a final Record of Decision is expected QA/QC Report for Site 16/SSA 16 should be submitted for EPA review

2. The Navy's July 24, 1995 response letter states that "as there are this site, this will not be conducted..." is not true. There is a 16/SSA 16, under the child residential scenario for both surface s rationale for not performing a Monte Carlo Sinulation is not suppo is suggested that the EPA toxicologist be consulted to determine i Central Tendencies) should be provided for those media which contribu in excess of the acceptable risk ranges promulgated by the EPA (e. and a hazard index of 1).

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This concludes EPA's comments on the Navy's draft final Round Two Baseline Risk Assessment for Site 16 and SSA 16, located at the WPNSTA questions regarding the above, please feel free to call me at (215) 597

Sincerely,

Robert Thomson, PE
VA/WV Superfund Fede

cc: Stephen Mihalko (VADEQ, Richmond)
Jeff Harlow (WPNSTA, Code 09E)
Andy Rola (BVWST, Phila.)
Nancy Jafolla (USEPA, 3HW13)
Bruce Rundell (USEPA, 3HW13)
Robert Davis (USEPA, 3HW13)